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Exercise - I (Conceptual Questions) Build Up Your Understanding

KINGDOM – PLANTAE – ALGAE

1. Which algal groups have similarity in pigment composition ?
(1) Red algae and brown algae
(2) Green algae and blue green algae
(3) Kelps and diatoms
(4) Diatoms and euglenoids

2. Parasitic algae is :-
(1) *Laminaria* (2) *Fucus*
(3) *Sargassum* (4) *Cephaleuros*

3. "Red rust of tea" is caused by parasitic:-
(1) Algae (2) Fungi
(3) Bacteria (4) Bryophyta

4. No zoospore formation has been observed in the algal members belonging to:-
(1) Chlorophyceae
(2) Brown algae
(3) Phaeophyceae
(4) Cyanophyceae

5. Which pigment is found in phaeophyceae?
(1) Chl. a, c and fucoxanthin
(2) Chl. a, d and violaxanthin
(3) β Carotene and phycocyanin
(4) None of these

6. Food reserve in Rhodophyta is :-
(1) Floridean starch (2) Mannitol
(3) Leucosin (4) All of the above

7. Zygotic meiosis is characteristic of :-
(1) Procaryotes (2) Thallophyta
(3) Bryophyta (4) Spermatophyta

8. Photosynthetic pigments common to all algae:-
(1) Chlorophyll 'b' and carotene
(2) Chlorophyll 'a' and 'b'
(3) Chlorophyll 'a' and carotene
(4) Chlorophyll and xanthophyll

9. *Chlorella*, a very good source of protein, belongs to:-
(1) Chlorophyta (2) Rhodophyta
(3) Pyrrophyta (4) Phaeophyta

10. Deepest algae in sea are :-
(1) Red Algae (2) Brown Algae
(3) Green Algae (4) Golden Algae

11. Phycobilins are characteristic pigments of :-
(1) Rhodophyta and phaeophyta
(2) Rhodophyta and Pyrophyta
(3) Pyrophyta and Cyanophyta
(4) Rhodophyta and Cyanophyta

12. Which of the following plant groups have similar pigment composition ?
(1) Rhodophyta and phaeophyta
(2) Chlorophyta and phaeophyta
(3) Rhodophyta and cyanophyta
(4) All of the above

13. Globule and nucule are sex organs of :–
(1) *Chara* (2) *Chlorella*
(3) *Laminaria* (4) *Polysiphonia*

14. Flagellated cells are absent in :-
(1) Red algae (2) Blue green algae
(3) Higher seed plants (4) All the above

15. Green algae are considered as ancestors of higher plants due to their resemblance with higher plants in :-
(1) Pigments (2) Cell wall
(3) Stored food (4) All the above

16. Pyrenoids are characteristically found in algae. A pyrenoid consists of :-
(1) Core of starch surrounded by protein
(2) Core of protein surrounded by starch
(3) Core of fatty acids covered by starch
(4) Nucleic acid and protein

17. In chlorophyta the mode of sexual reproduction is :-
(1) Isogamy (2) Anisogamy
(3) Oogamy
(4) Isogamy, Anisogamy and oogamy

18. Unique character of Thallophyta is :-
(1) Thalloid body
(2) Absence of vascular tissue
(3) Zygotic meiosis
(4) All the above

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19. In thallophyta main plant body is:-
(1) Gametophyte (2) Sporophyte
(3) Diploid plant body (4) Leafy plant body

20. Sexual reproduction in Thallophyta takes place by:-
(1) Isogamy (2) Anisogamy
(3) Oogamy (4) Any of the above

21. Most advanced group of Algae is :-
(1) Myxophyta (2) Chlorophyta
(3) Brown algae (4) Phaeophyta

22. "Agar-agar" is obtained from :-
(1) Green Algae
(2) Red Algae
(3) Brown Algae
(4) Yellow green Algae

23. Motile stages are not found in life cycle of:-
(1) Red Algae & green Algae
(2) Red Algae & brown Algae
(3) Red Algae & blue green Algae
(4) Green Algae & brown Algae

24. Embryo is not formed in thallophyta due to:-
(1) Zygotic meiosis
(2) Zygotic mitosis
(3) Sporangial meiosis
(4) Gametic meiosis

25. Oogonia of Thallophyta differs with archegonia of bryophyta :-
(1) Being multicellular
(2) Being jacketed
(3) Being stalked
(4) Being unicellular and jacket less

26. Which of the following best explains the evolution of sexual reproduction ?
(1) *Chlamydomonas* (2) *Ulothrix*
(3) *Puccinia* (4) *Albugo*

27. *Cephaleuros,* which causes "Red rust of tea" is a:-
(1) Red Algae (2) Brown Algae
(3) Dinoflagellate (4) Green Algae

28. *Volvox* belongs to :-
(1) Brown Algae (2) Red Algae
(3) Golden Algae (4) Green Algae

29. Gametes are non-motile in :-
(1) Blue green Algae (2) Red Algae
(3) Both 1 and 2 (4) Green Algae

30. Blue - green algae resembles more closely to:-
(1) Green Algae
(2) Brown Algae
(3) Red Algae and bacteria
(4) Slime molds

31. Which of the following statement is true for algae ?
(1) Algae have root, stem and leaves
(2) Algae have true roots but lack leaves
(3) Algae have rhizoides and leaves
(4) Body of algae is thallus

32. In which plant group reproductive organs are not enclosed in a layer of sterile cells?
(1) Pteridophyta (2) Thallophyta
(3) Angiosperm (4) Gymnosperm

33. Classification of algae is mainly based on :-
(1) Reproductive organs
(2) Structure of spores
(3) Pigments
(4) Stored food

34. "Carrageenin" is obtained from :-
(1) *Chondrus crispus*
(2) *Laminaria*
(3) *Gelidium*
(4) *Macrocystis*

35. Female sex organ of algae is called :-
(1) Carpel (2) Oogonium
(3) Archegonia (4) Oosphere

36. Which of the following is not correctly matched ?
(1) Heterocyst = N_2-fixation structure of B.G.A.
(2) Hormogonia= Reproductive structure of B.G.A
(3) Floridean starch = Stored food of brown algae
(4) Cyanophycean starch = Stored food of B.G.A.

37. Cilia & flagella are absent in life cycle of :–
(1) Red algae (2) Brown algae
(3) Green algae (4) Red algae & B.G.A.

38. Which algae best explains the evolution of sexual reproduction ?
(1) Green algae (2) Red algae
(3) Brown algae (4) B. G. Algae

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KINGDOM–PLANTAE – BRYOPHYTA

39. Embryo is present but true vasculature is absent in the group :-
(1) Cyanophyta (2) Tracheophyta
(3) Bryophyta (4) Chlorophyta

40. The unique feature of bryophytes compared to other green plant groups is that:-
(1) They produce spores
(2) They lack vascular tissue
(3) They lack root
(4) Their sporophyte is attached to gametophyte

41. In bryophytes diploid number of chromosomes occur in:-
(1) Gametes
(2) Spores
(3) Spore mother cells
(4) Nuclei of gametes

42. The group bryophyta includes :-
(1) Liverworts and ferns
(2) Liverworts and club moss
(3) Moss and ferns
(4) Liverworts and moss

43. A leafy non vascular plant with dependent sporophytic generation should properly be classified in
(1) Thallophyta (2) Bryophyta
(3) Pteridophyta (4) Spermatophyta

44. Bryophyta includes :-
(1) Mosses (2) Psilopsida
(3) Horse tails (4) All the above

45. A leafy gametophyte plant with multicellular rhizoids and sporophyte differentiated in foot, seta and capsule should belong to :-
(1) Psilopsida (2) Hepaticopsida
(3) Bryopsida (4) Lycopsida

46. Bryophytes differ from thallophytes in having:-
(1) Embryo
(2) Rhizoids
(3) Sterile jacket around sex organs
(4) All the above

47. Spores do not form protonema but directly grow into flat branching thallus in :-
(1) Liverworts (2) Mosses
(3) Ferns (4) Gymnosperms

48. In bryophyta, simplest sporophyte occur in:-
(1) *Riccia* (2) *Marchantia*
(3) *Funaria* (4) *Anthoceros*

49. In which of the following bryophytes there are gemmae, the means of vegetative reproduction?
(1) *Riccia* (2) *Marchantia*
(3) *Sphagnum* (4) *Anthoceros*

50. In Bryophytes what is absent :-
(1) Embryo formation
(2) Fertilization
(3) Motile gametes
(4) True roots and vascular tissue

51. In bryophytes fertilization takes place:-
(1) At low temp.
(2) In dry condition
(3) In presence of water
(4) In above all situation

52. Which statement is true about bryophytes?
(1) They are non photosynthetic
(2) Zygote produces gametophyte on germination
(3) Spores form gametophyte plant on germination
(4) They have vascular tissues

53. Which bryophyte is of economic importance ?
(1) *Funaria* (2) *Marchantia*
(3) *Riccia* (4) *Sphagnum*

54. Mosses are gregarious because they :-
(1) Have vascular tissue
(2) Have indirect germination of spores
(3) Have direct germination of spores
(4) Have spore mother cells

55. Aquatic ancestry of bryophytes is evidenced by:-
(1) Their green colour
(2) Algae like protonema
(3) Many aquatic bryophytes
(4) Flagellated male gametes

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56. Moss sporophyte is diffrentiated in :-
(1) Stem & leaves
(2) Root, stem and leaves
(3) Rhizoids, stem & leaves
(4) None of these

57. Oblique septa are found in which part of moss:-
(1) Rhizoids of sporophyte
(2) Rhizoids of gametophyte
(3) Leaves
(4) Stem

58. Leaves of Mosses and Ferns are :-
(1) Analogous and homologous both
(2) Analogous but not homologous
(3) Homologous but not analogous
(4) None of the above

59. Which of the following plants are similar in requirement of water for fertilisation ?
(1) Bryophyta
(2) Pteridophyta
(3) Angiosperm
(4) (1) and (2) both

60. The bryophyte which have great water holding capacity :-
(1) *Anthoceros* (2) *Sphagnum*
(3) *Funaria* (4) *Marchantia*

61. In which of the following zygote further develops to form a diploid structure ?
(1) Thallophyta (2) Bryophyta
(3) Algae (4) Fungi

62. Bryophytes are :–
(1) First successful land plant
(2) Vascular cryptogames
(3) Non vascular cryptogames
(4) Vascular embryophytes

63. Sex organ in bryophytes are :–
(1) Unicellular and jacketed
(2) Unicellular and non-jacketed
(3) Multicellular and jacketed
(4) Multicellular and non jacketed

64. Fossilised fuel obtained from bog is:-
(1) Tar (2) Peat
(3) Bio-gas (4) Petrol

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65. Which structure produces the gamete bearing plant of moss ?
(1) Spore (2) Bud
(3) Protonema (4) Zygote

66. Bryophytes show an advancement over algae in:-
(1) Having multicellular sporophytic generation
(2) Having parasitic sporophyte
(3) Having zygotic meiosis
(4) None of the above

67. Which bryophyte is known as Peat moss ?
(1) *Riccia* (2) *Riella*
(3) *Sphagnum* (4) *Marchantia*

68. Leafy gametophyte occurs in:-
(1) Liver worts (2) Horn worts
(3) Moss (4) Fern

69. Sporophyte with indefinite growth occurs in:-
(1) Liver worts (2) Horn worts
(3) Mosses (4) Algae

70. *Sphagnum* may be used as a substitute of :-
(1) Absorbent cotton
(2) Non absorbent cotton
(3) Plastic
(4) Polythene

71. Non vascular embryophyta are :-
(1) Thallophyta (2) Bryophyta
(3) Pteridophyta (4) (1) and (2) both

72. The water conducting tissue in bryophyta is:-
(1) Parenchyma (2) Sclerenchyma
(3) Tracheids (4) Sieve tubes

73. Bryophyta are not tall plants due to:-
(1) Absence of meristem
(2) Absence of vascular tissues
(3) Presence of root system
(4) All the above

74. The first cell of sporophytic generation in bryophyta is:-
(1) Spore (2) Spore mother cell
(3) Zygote (4) Protonema

75. Structures for dispersal of spores in bryophyta are :-
(1) Elaters (2) Pseudoelaters
(3) Peristomial teeth (4) All the above

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76. Oblique septa in rhizoids are characteristic of:-
(1) Liverworts (2) Hornworts
(3) Mosses (4) Ferns

77. In which bryophyta germination of spore is indirect:-
(1) *Riccia* (2) *Rhizopus*
(3) *Puccinia* (4) *Funaria*

78. Male gametes of bryophytes are :-
(1) Uniflagellate (2) Multiflagellate
(3) Biflagellate (4) Triflagellate

79. Rhizoids of hepaticopsida and anthocerotopsida are :-
(1) Multicellular and branched
(2) Unicellular and unbranched
(3) Unicellular and branched
(4) Multicellular and unbranched

80. The vascular tissue is absent in :-
(1) Algae, fungi and pteridophytes
(2) Thallophytes and bryophytes
(3) Bryophytes and pteridophytes
(4) Angiosperm and gymnosperm

81. The sporophyte of bryophyte is :-
(1) Parasitic
(2) Autotrophic
(3) Saprophytic
(4) Semiparasitic or parasitic

82. Non vascular land plants are called:-
(1) Bryophtyes (2) Pteridophytes
(3) Fungi (4) Algae

KINGDOM–PLANTAE – PTERIDOPHYTA

83. Vascular cryptogams or seed less vascular plants belongs to:-
(1) Bryophyta (2) Pteridophyta
(3) Thallophyta (4) Spermatophyta

84. Seed habit first established in:-
(1) Pteridophytes
(2) Gymnosperms
(3) Angiosperms
(4) None of the above

85. Most conspicuous alternation of generation occurs is:-
(1) Thallophyta (2) Bryophyta
(3) Pteridophyta (4) Spermatophyta

86. Rhizoids containing sporophytic plants are characteristic of:-
(1) Bryopsida (2) Spenopsida
(3) Cycadophyta (4) Psilopsida

87. Which group includes green leaf microphyllous plants:-
(1) Lycopsida (2) Sphenopsida
(3) Psilotopsida (4) Pteropsida

88. Roots first originated in :-
(1) Algae (2) Fungi
(3) Bryophyta (4) Pteridophyta

89. Pteridophyta differs from bryophyta in having:-
(1) Vascular tissue
(2) Archegonia
(3) Alternation of generations
(4) Motile sperm

90. In pteridophyta, reduction division occurs when:-
(1) Prothallus is formed
(2) Spores are formed
(3) Sex organs are formed
(4) Gametes are formed

91. The main plant body of pteridophytes is:-
(1) Sporophyte
(2) Gametophyte
(3) Haploid
(4) None of the above

92. Cryptogamic plants are:-
(1) Seedless (2) Embryoless
(3) Leafless (4) Rootless

93. *Adiantum* is called "walking fern" due to :-
(1) Power of locomotion
(2) Vegetative reproduction
(3) Motile antherozoites
(4) All the above

94. Plants having vascular tissues but lacking seeds are :-
(1) Bryophyta (2) Pteridophyta
(3) Gymnosperms (4) Angiosperms

95. Heterospory occurs in :-
(1) *Selaginella* (2) *Pteridium*
(3) *Funaria* (4) *Riccia*

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96. Sporangia are found in fruiting structures called sporocarps in aquatic ferns, which of the following is aquatic fern :–
(1) *Salvinia* (2) *Selaginella*
(3) *Pteridium* (4) *Equisetum*

97. The antherozoids of fern are :–
(1) Uniflagellate (2) Biflagellate
(3) Quadriflagellate (4) Multiflagellate

98. In pteridophytes the spores germinate to form:-
(1) Protonema (2) Prothallus
(3) Sporophyte (4) Archegonium

99. Aquatic fern which supports the growth of blue green algae, *Anabaena*, and used to increase the yield of paddy crop is :-
(1) *Salvinia* (2) *Marsilea*
(3) *Selaginella* (4) *Azolla*

100. Most distinct type of alternation of generations is demonstrated by :–
(1) Angiosperms (2) Ferns
(3) Gymnosperms (4) Bryophytes

101. Presence of motile stage in life cycle & requirement of water as a medium to complete life cycle is diagnostic characters of:
(1) Thallophyta (2) Bryophyta
(3) Pteridophyta (4) Cryptogams

102. Evolution of seed habit first started in :-
(1) *Selaginella* like ancestral pteridophytes
(2) *Psilotum* like ancestral pteridophytes
(3) Gymnosperms
(4) Mosses

103. Which is an aquatic fern
(1) *Psilotum* (2) *Salvinia*
(3) *Chara* (4) *Lycopodium*

104. In ferns, the permanent roots are :-
(1) Tap root
(2) Adventitious roots
(3) Tuberous roots
(4) Rhizome

105. Independent alternation of generation is found in-
(1) Pteridophyta (2) Spermatophyta
(3) Thallophyta (4) Bryophyta

106. Stem distinctly differentiated in to node and internode in :-
(1) Psilopsida (2) Lycopsida
(3) Sphenopsida (4) Pteropsida

107. Spore producing part of pteridophytes is:-
(1) Sporangia of gametophytes
(2) Capsule of sporophytes
(3) Sporangia of sporophytes
(4) Capsule of gametophytes

108. In pteridophytes, reduction division takes place in :-
(1) Zygote (2) Spore mother cells
(3) Gametangia (4) Prothallus

KINGDOM–PLANTAE – GYMNOSPERM

109. Most advanced Gymnosperm belongs to:-
(1) Cycadales (2) Coniferales
(3) Gnetales (4) Cycadofillicales

110. Which of the following is called father of forest?
(1) *Pinus* (2) *Banyan*
(3) *Sequoia* (4) *Cedrus*

111. All Gymnosperms are:-
(1) Heterosporous
(2) Arborescent/Woody
(3) Seed plants
(4) All the above

112. Gymnosperm plants lack :-
(1) Vessels (2) Fruits
(3) Companion cells (4) All the above

113. Gymnosperm plants do not produce fruits because they do not have:-
(1) ovary (2) gametes
(3) fertilization (4) None of these

114. Ovule is morphologically equivalent to:-
(1) Megaspore
(2) Megasporangium
(3) Microspore
(4) Megasporophyll

115. Cones in gymnosperm plants are usually :-
(1) Bisexual (2) Unisexual
(3) Sterile (4) Any of the above

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116. Double fertilization and triple fusion are characteristic of:-
(1) Spermatophyta (2) Gymnosperms
(3) Pteridophyta (4) Angiosperms

117. In which of the following characters, the angiosperms resemble gymnosperms ?
(1) Presence of ovule
(2) Absence of endosperm
(3) Presence of vessels
(4) Mode of fertilisation by zoidogamy

118. Which character most differentiates angiosperms from gymnosperms ?
(1) Triploid endosperm
(2) Vessels in xylem
(3) Seeds enclosed in fruits
(4) Attractive petels

119. Gametophyte depends on sporophyte in:-
(1) Bryophyta (2) Pteridophyta
(3) Cryptogams (4) Spermatophyta

120. Antheridia and archegonia are absent in :-
(1) Bryophyta (2) Pteridophyta
(3) Gymnosperms (4) Angiosperms

121. Ephedrine is obtained by :-
(1) *Ephedra* (2) *Gnetum*
(3) *Pinus* (4) *Cycas*

122. Resin turpentine is obtained from:-
(1) *Pinus* (2) *Adiantum*
(3) Club mosses (4) *Sequoia*

123. Which group is largest in gymnosperms ?
(1) Cycadales (2) Gnetales
(3) Coniferales (4) Cordaitales

124. Spore bearing tracheophytes (Vascular plants) :-
(1) Pteridophyta (2) Gymnosperms
(3) Angiosperms (4) All the above

125. Which of the following Gymnospermic orders resembles with angiosperms ?
(1) Cycadales (2) Coniferales
(3) Gnetales (4) Ginkgoales

126. Living fossil:-
(1) *Cycas* (2) *Ginkgo*
(3) *Psilotum* (4) All the above

127. *Sequoia* belongs to:-
(1) Cycadofillicales (2) Gnetales
(3) Coniferales (4) Dicots

128. Which of the following are absent in group gymnosperm ?
(1) Trees (2) Shrubs
(3) Liana (4) Herbs

129. Which plant group is exclusively perennial ?
(1) Dicots (2) Ferns
(3) Gymnosperms (4) Monocots

130. In *Ginkgo*, male gametes are :-
(1) Motile (2) Non-motile
(3) Amoeboid (4) Absent

131. Male gamete of *Cycas* is largest in plant kingdom, is :-
(1) Non motile (2) Biflagellate
(3) Multiciliate (4) Uniflagellate

132. The mode of pollination in gymnosperme is:-
(1) Anemophily
(2) Entomophily
(3) Hydrophily
(4) Any of the above

133. Which of the following order of gymnosperme is totally become extinct ?
(1) Cycadales (2) Ginkgoales
(3) Gnetales (4) Cycadofilicales

134. Which of the following remained unchanged for last many million years ?
(1) *Pinus* (2) Rice
(3) *Cedrus* (4) *Ginkgo*

135. Life cycle of gymnosperm is :-
(1) Haplontic (2) Haplodiplontic
(3) Diplontic (4) Diplohaplontic

136. Which of the following is commonly known as "Chilgoza pine" ?
(1) *Cycas* (2) *Cedrus*
(3) *Pinus* (4) *Ginkgo*

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137. The gymnosperm resembles with angiosperm in having :-
(1) Ciliated sperms
(2) Presence of ovary
(3) Presence of seed
(4) Presence of fruit

138. In pteridophytes and gymnosperm sporangia are born on which side of sporophyll :–
(1) Adaxial (2) Abaxial
(3) Lateral (4) Terminal

139. Vessels and companion cells are found in :–
(1) Pteridophyta (2) *Gnetum*
(3) *Ephedra* (4) Angiosperm

140. Fruits are not formed in gymnosperm because :–
(1) Fertilization is absent
(2) Pollination is absent
(3) Seeds are not formed
(4) Ovary is absent

141. Which one have maximum power of adaptation ?
(1) Bryophyta (2) Pteridophyta
(3) Gymnosperm (4) Angiosperm

142. Gymnosperms differ from pteridophytes in having–
(1) Presence of tracheids
(2) Presence of embryo
(3) Presence of ovule
(4) Companian cell

143. Most gymnosperms have :–
(1) Both archegonia and antheridia
(2) Antheridia but no archegonia
(3) Archegonia but no antheridia
(4) No antheridia or archegonia

144. The "endosperm" of a gymnosperm represent:–
(1) Gametophytic tissue
(2) Sporophytic tissue
(3) Tissue formed by double fertilization
(4) Polyploid tissue

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145. Vessels occur in the following gymnosperm plant:–
(1) *Ginkgo* (2) *Taxus*
(3) *Gnetum* (4) All the above

146. In gymnosperm endosperm is :–
(1) Triploid (2) Diploid
(3) Haploid (4) Tetraploid

147. Which of the following is not heterosporous ?
(1) *Selaginella* (2) *Pinus*
(3) *Pteridium* (4) *Cycas*

148. Multiciliate male gametes are found in :–
(1) *Pinus* (2) *Cycas*
(3) *Gnetum* (4) *Mango*

149. Which of the following plant form seed and have pollen tube ?
(1) Angiosperm
(2) Pteridophytes
(3) Gymnosperm
(4) Siphonogamous plants

150. Modern day (Advanced) plants are:-
(1) Monocots (2) Dicots
(3) Gnetales (4) Ferns

KINGDOM–PLANTAE – ANGIOSPERMS

151 Which of the following is not a part of flower?
(1) Androecium (2) Gynoecium
(3) Calyx (4) Trophophyll

152. Smallest angiosperm is: -
(1) *Wolffia* (2) *Eucalyptus*
(3) *Mustard* (4) *Tomato*

153. Pulses are: -
(1) Monocots plants
(2) Dicot plants
(3) Both (1) and (2)
(4) Conifers

154. Which of the following products are provided by angiosperms?
(1) Fuel
(2) Fodder
(3) Food
(4) Fuel, Fodder and Food

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155. The seeds are enclosed in ovary in :-
(1) Angiosperms (2) Gymnosperms
(3) Bryophytes (4) Pteridophytes

156. Double fertilization and triple fusion are characteristics of: -
(1) Spermatophyta
(2) Gymnosperms
(3) Pteridophytes
(4) Angiosperms

157. Which of the following plant groups, produces flowers ?
(1) Bryophytes (2) Pteridophytes
(3) Algae (4) Angiosperms

158. After fertilization ovule converts into: -
(1) Fruit (2) Ovary wall
(3) Seed (4) Nucellus

159. Life cycle of gymnosperm is: -
(1) Haplontic (2) Haplo-diplontic
(3) Diplontic (4) Diplohaplontic

160. Which kind of life-cycle pattern is exhibited by seed bearing plants?
(1) Haplontic (2) Diplontic
(3) Haplo-diplontic (4) All of these

161. Haplontic life cycle is present in: -
(1) *Wheat* (2) Gymnosperm
(3) *Fucus* (4) *Volvox*

162. Which of the following life cycle has only one celled zygote as sporophytic generation?
(1) Haplontic (2) Diplontic
(3) Haplo-diplontic (4) All of these

163. The life cycle pattern of *Fucus* is: -
(1) Haplontic (2) Diplontic
(3) Haplo-diplontic (4) All of these

164. Life cycle of *Ectocarpus* and *Fucus* are_____ and _____ respectively: -
(1) Diplontic, Haplo-diplontic
(2) Haplo-diplontic, Diplontic
(3) Haplo-diplontic, Haplontic
(4) Haplontic, Diplontic

165. The pattern of life cycle in bryophyte is :-
(1) Haplontic
(2) Diplontic
(3) Haplo-diplontic
(4) Diploid gametophyte

166. Life cycle of kelps is :-
(1) Haplontic
(2) Diplontic
(3) Haplo-diplontic
(4) Diplontic- haplontic

167. Life cycle of the pteridophytes is :-
(1) Haplontic
(2) Diplontic
(3) Haplo-diplontic
(4) All of them

168. Which pattern of life cycle is followed by moss and fern respectively :-
(1) Haplontic, Diplontic
(2) Diplontic, Haplontic
(3) Haplodiplontic, Diplohaplontic
(4) Haplodiplontic, Haplodiplontic

TG: @Chalnaayaaar

EXERCISE-I (Conceptual Questions) ANSWER KEY

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Answer	3	4	1	4	1	1	2	3	1	1	4	3	1	4	4
Question	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Answer	2	4	3	1	4	2	2	3	1	4	1	4	4	2	3
Question	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Answer	4	2	3	1	2	3	4	1	3	4	3	4	2	1	3
Question	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Answer	4	1	1	2	4	3	3	4	2	4	4	2	2	4	2
Question	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
Answer	2	3	3	2	2	1	3	3	2	1	2	1	2	3	4
Question	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Answer	3	4	3	2	2	4	1	2	2	3	4	1	4	1	2
Question	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105
Answer	1	1	2	2	1	1	4	2	4	2	4	1	2	2	1
Question	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
Answer	3	3	2	3	3	4	4	1	2	2	4	1	3	4	4
Question	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135
Answer	1	1	3	4	3	4	3	4	3	1	3	1	4	4	3
Question	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150
Answer	3	3	2	4	4	4	3	3	1	3	3	3	2	4	1
Question	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165
Answer	4	1	2	4	1	4	4	3	3	2	4	1	2	2	3
Question	166	167	168												
Answer	3	3	4												

TG: @Chalnaayaaar

Exercise - II (Previous Year Questions) AIPMT/NEET

AIPMT 2006

1. Conifers differ from grasses in the
(1) absence of pollen tubes
(2) formation of endosperm before fertilization
(3) production of seeds from ovules
(4) lack of xylem tracheids

2. Moss peat is used as a packing material for sending flowers and live plants to distant places because :
(1) it reduces transpiration
(2) it serves as a disinfectant
(3) it is easily available
(4) it is hygroscopic

3. In a moss the sporophyte :
(1) arises from a spore produced from the gametophyte
(2) manufactures food for itself, as well as for the gametophyte
(3) is partially parasitic on the gametophyte
(4) produces gametes that give rise to the gametophyte

AIPMT 2007

4. In the prothallus of a vascular cryptogam, the antherozoids and eggs mature at different times. As a result :
(1) Self fertilization is prevented
(2) There is no change in success rate of fertilization
(3) There is high degree of sterility
(4) One can conclude that the plant is apomictic

5. If you are asked to classify the various algae into distinct groups, which of the following characters you should choose ?
(1) Chemical composition of the cell wall
(2) Types of pigments present in the cell
(3) Nature of stored food materials in the cell
(4) Structural organization of thallus

6. Flagellated male gametes are present in all the three of which one of the following sets?
(1) *Riccia, Dryopteris* and *Cycas*
(2) *Anthoceros, Funaria* and *Spirogyra*
(3) *Zygnema, Saprolegnia* and *Hydrilla*
(4) *Fucus, Marsilea* and *Calotropis*

7. In gymnosperms, the pollen chamber represents:
(1) The microsporangium in which pollen grains develop
(2) A cell in the pollen grain in which the sperms are formed
(3) A cavity in the ovule in which pollen grains are stored after pollination
(4) An opening in the megagametophyte through which the pollen tube approaches the egg

8. Spore dissemination in some liverworts is aided by:
(1) Peristome teeth (2) Elaters
(3) Indusium (4) Calyptra

AIPMT 2008

9. Select one of the following pairs of important features distinguishing *Gnetum* from and *Pinus* and showing affinities with angiosperms :-
(1) Perianth and two integuments
(2) Embryo development and apical meristem
(3) Absence of resin duct and leaf venation
(4) Presence of vessel elements and absence of archegonia

10. In which one of the following, male and female gametophytes do not have free living independent existence?
(1) *Polytrichum* (2) *Cedrus*
(3) *Pteris* (4) *Funaria*

11. Which one of the following is heterosporous ?
(1) *Adiantum* (2) *Equisetum*
(3) *Dryopteris* (4) *Salvinia*

TG: @Chalnaayaaar

AIPMT 2009

12. Which one of the following has haplontic life cycle:-
(1) Wheat (2) *Funaria*
(3) *Polytrichum* (4) *Ustilago*

13. Mannitol is the stored food in :-
(1) *Gracillaria* (2) *Chara*
(3) *Porphyra* (4) *Fucus*

14. Which one of the following is a vascular cryptogam
(1) *Cedrus* (2) *Equisetum*
(3) *Ginkgo* (4) *Marchantia*

15. Phylogenetic system of classification is based on:-
(1) Floral characters
(2) Evolutionary relationships
(3) Morphological features
(4) Chemical constituents

16. Which one of the following is considered important in the development of seed habit ?
(1) Free-living gametophyte
(2) Dependent sporophyte
(3) Heterospory
(4) Haplontic life cycle

17. Which one of the following plants is monoecious?
(1) Papaya (2) *Marchantia*
(3) *Pinus* (4) *Cycas*

18. Which of the following is a symbiotic nitrogen fixer?
(1) *Azolla* (2) *Glomus*
(3) *Azotobacter* (4) *Frankia*

AIPMT 2010

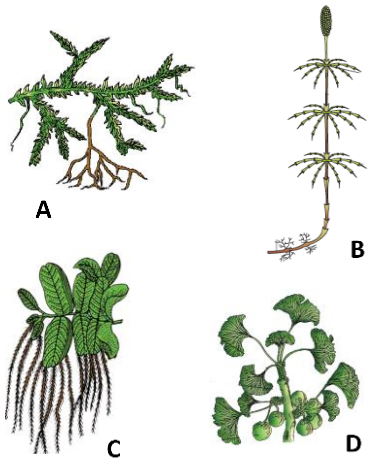
19. Male and female gametophytes are independent and free-living in :-
(1) *Sphagnum* (2) Mustard
(3) Castor (4) *Pinus*

20. Algae have cell wall made up of :
(1) Cellulose, hemicellulose and pectins
(2) Cellulose, galactans and mannans
(3) Hemicellulose, *pectins* and proteins
(4) Pectins, cellulose and proteins

TG: @Chalnaayaaar

21. The chief water conducting elements of xylem in gymnosperms are :
(1) Tracheids (2) Vessels
(3) Fibres (4) Transfusion tissue

22. Examine the figure A, B, C and D. In which one of the four options all the items A, B, C and D are correct ?



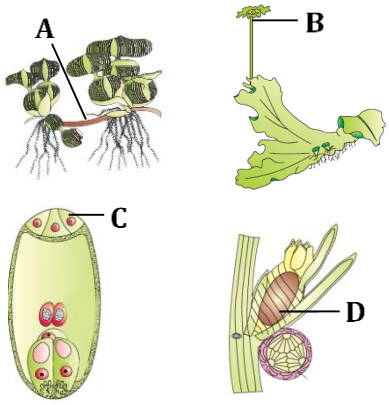
Options :

	A	B	C	D
(1)	*Equisetum*	*Ginkgo*	*Selaginella*	*Lycopodium*
(2)	*Selaginella*	*Equisetum*	*Salvinia*	*Ginkgo*
(3)	*Funaria*	*Adiantum*	*Salvinia*	*Riccia*
(4)	*Chara*	*Marchantia*	*Fucus*	*Pinus*

23. Which one of the following is monoecious ?
(1) *Cycas* (2) *Pinus*
(3) *Date plam* (4) *Marchantia*

24. Examine the figures (A-D) given below and select the right option out of 1–4, in which all the four structures A, B, C and D are identified correctly:-

Structures :



TG: @Chalnaayaaar

(1) A–Runner, B–Archegoniophore, C–Synergid, D–Antheridium
(2) A–Offset, B–Antheridiophore, C–Antipodals, D–Oogonium
(3) A–Sucker, B–Seta, C–Megaspore, D–Gemma cup, D–mother cell
(4) A–Rhizome, B–Sporangiophore, C–Polar cell, D–Globule

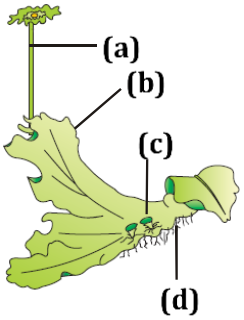
AIPMT 2011

25. Archegoniophore is present in :-
(1) *Marchantia* (2) *Chara*
(3) *Adiantum* (4) *Funaria*

26. Compared with the gametophytes of the bryophytes, the gametophytes of vascular plants tend to be :-
(1) Smaller but to have larger sex organs
(2) Larger but to have smaller sex organs
(3) Larger and to have larger sex organs
(4) Smaller and to have smaller sex organs

27. The gametophyte is not an independent, free living generation in:-
(1) *Polytrichum* (2) *Adiantum*
(3) *Marchantia* (4) *Pinus*

28. Examine the figure given below and select the right option giving all the four parts (a, b, c, d) correctly identified.



	(a)	(b)	(c)	(d)
(1)	Antherid	Male iophore	Globule thallus	Roots
(2)	Archego-niophore	Female thallus	Gemma-cup	Rhizoids
(3)	Archego-niophore	Female thallus	Bud	Foot
(4)	Seta	Sporo-phyte	Proto-nema	Rhizoids

TG: @Chalnaayaaar

29. *Selaginella* and *Salvinia* are considered to represent a significant step toward evolution of seed habit because :-
(1) Embryo develops in female gametophyte which is retained on parent sporophyte
(2) Female gametophyte is free and gets dispersed like seeds.
(3) Female gametophyte lacks archegonia
(4) Megaspores possess endosperm and embryo surrounded by seed coat.

30. Consider the following four statements whether they are correct or wrong :
(a) The sporophyte in liverworts is more elaborate than that is mosses.
(b) *Salvinia* is heterosporous
(c) The life-cycle in all seed-bearing plants is diplontic.
(d) In Pinus male and female cones are borne on different trees.
The two wrong statements together are :
(1) Statements (a) and (b)
(2) Statements (a) and (c)
(3) Statements (a) and (d)
(4) Statements (b) and (c)

AIPMT 2012

31. *Cycas* and *Adiantum* resemble each other in having :-
(1) Cambium (2) Vessels
(3) Seeds (4) Motile sperms

32. Which one of the following is a correct statement ?
(1) Antheridiophores and archegoniophores are present in pteridophytes
(2) Origin of seed habit can be traced in pteridophytes
(3) Pteridophyte gametophyte has a protonemal and leafy stage
(4) In gymnosperms female gametophyte is free living

33. A nitrogen fixing microbe associated with *Azolla* in rice-fields is :-
(1) *Frankia* (2) *Tolypothrix*
(3) *Spirulina* (4) *Anabaena*

34. Read the following five statements (A – E) and answer as asked next to them :-
(A) In *Equisetum* the female gametophyte is retained on the parent sporophyte
(B) In *Ginkgo* male gametophyte is not independent
(C) The sporophyte in *Riccia* is more developed than that in *Polytrichum*
(D) Sexual reproduction in - Volvox is isogamous
(E) The spores of slime molds lack cell walls
How many of the above statements are correct ?
(1) Four (2) One (3) Two (4) Three

35. Which one of the following pairs is wrongly matched?
(1) Viroids – RNA
(2) Mustard - Synergids
(3) *Ginkgo* – Archegonia
(4) *Salvinia* - Prothallus

NEET-UG 2013

36. Megasporangium is equivalent to :
(1) Ovule (2) Embryo sac
(3) Fruit (4) Nucellus

37. Isogamous condition with non-flagallated gametes is found in :
(1) *Fucus* (2) *Chlamydomonas*
(3) *Spirogyra* (4) *Volvox*

38. Monoecious plant of *Chara* shows occurrence of:
(1) upper oogonium and lower antheridium on the same plant
(2) antheridiophore and archegoniophore on the same plant
(3) stamen and carpel on the same plant
(4) upper antheridium and lower oogonium on the same plant

39. Which of the following is **not** correctly matched for the organism and its cell wall degrading enzyme?
(1) Fungi – Chitinase
(2) Bacteria – Lysozyme
(3) Plant cells – Cellulase
(4) Algae – Methylase

TG: @Chalnaayaaar

40. Read the following statements (A–E) and answer the question which follows them.
(a) In liverworts, mosses and ferns gametophytes are free living
(b) Gymnosperms and some ferns are heterosporous
(c) Sexual reproduction in *Fucus*, *Volvox* and *Allbugo* is oogamous
(d) The sporophyte in liverworts is more elaborate than that in mosses
(E) Both, *Pinus* and *Marchantia* are dioecious
How many of the above statements are correct ?
(1) Four (2) One
(3) Two (4) Three

AIPMT 2014

41. Which one of the following shows isogamy with non-flagellated gametes?
(1) *Sargassum*
(2) *Ectocarpus*
(3) *Ulothrix*
(4) *Spirogyra*

42. Which one of the following is wrong about *Chara*?
(1) Upper oogonium and lower round antheridium.
(2) Globule and nucule present on the same plant.
(3) Upper antheridium and lower oogonium
(4) Globule is male reproductive structure

43. Which of the following is responsible for peat formation ?
(1) *Marchantia* (2) *Riccia*
(3) *Funaria* (4) *Sphagnum*

44. Male gametophyte with least number of cell is present in :
(1) *Pteris* (2) *Funaria*
(3) *Lilium* (4) *Pinus*

45. An alga which can be employed as food for human being is :-
(1) *Ulothrix* (2) *Chlorella*
(3) *Spirogyra* (4) *Polysiphonia*

TG: @Chalnaayaaar

AIPMT 2015

46. In which of the following gametophyte is **not** independent free living ?
(1) *Marchantia* (2) *Pteris*
(3) *Pinus* (4) *Funaria*

47. Read the following five statements (A to E) and select the option with **all correct** statements :-
(A) Mosses and Lichens are the first organisms to colonise a bare rock.
(B) *Selaginella* is a homosporous pteridophyte
(C) Coralloid roots in *Cycas* have VAM
(D) Main plant body in bryophytes is gametophytic, whereas in pteridophytes it is sporophytic
(E) In gymnosperms, male and female gametophytes are present within sporangia located on sporophyte
(1) (B), (C) and (D) (2) (A), (D) and (E)
(3) (B), (C) and (E) (4) (A), (C) and (D)

48. Male gemetes are flagellated in :
(1) *Anabaena* (2) *Ectocarpus*
(3) *Spirogyra* (4) *Polysiphonia*

49. Which one of the following statements is **wrong**?
(1) Agar - agar is obtained from *Gelidium* and *Gracilaria*
(2) *Chlorella* and *Spirulina* are used as space food
(3) Mannitol is stored food in Rhodophyceae
(4) Algin and carragen are products of algae

Re-AIPMT 2015

50. Which one is a **wrong** statement ?
(1) Brown algae have chlorophyll a and c, and fucoxanthin
(2) Archegonia are found in Bryophyta, Pteridophyta and Gymnosperms
(3) *Mucor* has biflagellate zoospores
(4) Haploid endosperm is typical feature of gymnosperms

TG: @Chalnaayaaar

NEET-I 2016

51. Select the **correct** statement :-
(1) Gymnosperms are both homosporous and heterosporous
(2) *Salvinia*, *Ginkgo* and *Pinus* all are gymnosperms
(3) *Sequoia* is one of the tallest trees
(4) The leaves of gymnosperms are not well adapted to extremes of climate

52. In bryophytes and pteridophytes, transport of male gametes requires :-
(1) Wind (2) Insects
(3) Birds (4) Water

53. Which of the following would appear as the pioneer organisms on bare rocks?
(1) Lichens (2) Liverworts
(3) Mosses (4) Green algae

NEET-II 2016

54. The ovule of an angiosperm is technically equivalent to :
(1) megaspore mother cell
(2) megaspore
(3) megasporangium
(4) megasporophyll

55. Conifers are adapated to tolerate extreme environmental conditions because of :
(1) thick cuticle
(2) presence of vessels
(3) broad hardy leaves
(4) superficial stomata

56. Which one of the following statements is **wrong**?
(1) Agar-agar is obtained from *Gelidium* and *Gracilaria*
(2) *Laminaria* and *Sargassum* are used as food
(3) Algae increase the level of dissolved oxygen in the immediate environment
(4) Algin is obtained from red algae, and carrageenan from brown algae.

NEET (UG) 2017

57. An example of colonial alga is :
(1) *Volvox* (2) *Ulothrix*
(3) *Spirogyra* (4) *Chlorella*

58. Zygotic meiosis is characteristic of;
(1) *Fucus* (2) *Funaria*
(3) *Chlamydomonas* (4) *Marchantia*

59. Life cycle of *Ectocarpus* and *Fucus* respectively are:
(1) Diplontic, Haplodiplontic
(2) Haplodiplontic, Diplontic
(3) Haplodiplontic, Haplontic
(4) Haplontic, Diplontic

60. Select the mismatch
(1) *Cycas* – Dioecious
(2) *Salvinia* – Heterosporous
(3) *Equisetum* – Homosporous
(4) *Pinus* – Dioecious

NEET (UG) 2018

61. Which of the following statement is ***correct***?
(1) Ovules are not enclosed by ovary wall in gymnosperms
(2) *Selaginella* is *heterosporous*, while *Salvinia* is homosporous
(3) Horsetails are gymnosperms
(4) Stems are usually unbranched in both *Cycas* and *Cedrus*

62. Which one is ***wrongly*** matched ?
(1) Uniflagellate gametes - *Polysiphonia*
(2) Biflagellate zoospores - Brown algae
(3) Gemma cups - *Marchantia*
(4) Unicellular organism - *Chlorella*

63. Winged pollen grains are present in
(1) Mustard (2) *Cycas*
(3) Mango (4) *Pinus*

NEET (UG) 2019

64. Phloem in gymnosperms lacks :
(1) Albuminous cells and sieve cells
(2) Sieve tubes only
(3) Companion cells only
(4) Both sieve tubes and companion cells

TG: @Chalnaayaaar

65. From evolutionary point of view, retention of the female gametophyte with developing young embryo on the parent sporophyte for some time, is first observed in :
(1) Liverworts
(2) Mosses
(3) Pteridophytes
(4) Gymnosperms

NEET (UG) 2020

66. Floridean starch has structure similar to:
(1) Laminarin and cellulose
(2) Starch and cellulose
(3) Amylopectin and glycogen
(4) Mannitol and align

67. Which of the following pairs is of unicellular algae?
(1) *Chlorella* and *Spirulina*
(2) *Laminaria* and *Sargassum*
(3) *Gelidium* and *Gracilaria*
(4) *Anabaena* and *Volvox*

68. Strobili or cones are found in :
(1) *Equisetum* (2) *Salvinia*
(3) *Pteris* (4) *Marchantia*

NEET (UG) 2020 (COVID-19)

69. Phycoerythrin is the major pigment in :
(1) Red algae
(2) Blue green algae
(3) Green algae
(4) Brown algae

70. Which of the following statements is incorrect about gymnosperms ?
(1) They are heterosporous
(2) Male and female gametophytes are free living
(3) Most of them have narrow leaves with thick cuticle
(4) Their seeds are not covered

71. Male and female gametophytes do not have an independent free living existence in :-
(1) Pteridophytes (2) Algae
(3) Angiosperms (4) Bryophytes

TG: @Chalnaayaaar

NEET (UG) 2021

72. Gemmae are present in :
(1) Mosses
(2) Pteridophytes
(3) Some Gymnosperms
(4) Some Liverworts

73. Genera like *Selaginella* and *Salvinia* produce two kinds of spores. Such plants are known as:
(1) Homosorus
(2) Heterosorus
(3) Homosporous
(4) Heterosporous

74. Which of the following plants is monoecious?
(1) *Carica papaya*
(2) *Chara*
(3) *Marchantia polymorpha*
(4) *Cycas circinalis*

75. Which of the following algae contains mannitol as reserve food material ?
(1) *Ectocarpus* (2) *Gracilaria*
(3) *Volvox* (4) *Ulothrix*

76. Which of the following algae produce Carrageen ?
(1) Green algae
(2) Brown algae
(3) Red algae
(4) Blue-green algae

NEET (UG) 2022

77. Hydrocolloid carrageen is obtained from :
(1) Phaeophyceae and Rhodophyceae
(2) Rhodophyceae only
(3) Phaeophyceae only
(4) Chlorophyceae and Phaeophyceae

78. Which of the following is **incorrectly** matched ?
(1) *Ulothrix* – Mannitol
(2) *Porphyra* - Floridian Starch
(3) *Volvox* – Starch
(4) *Ectocarpus* - Fucoxanthin

79. Match the plant with the kind of life cycle it exhibits:

List-I		List-II
(a) *Spirogyra*	(i)	Dominant diploid sporophyte vascular plant, with highly reduced male or female gametophyte
(b) Fern	(ii)	Dominant haploid free-living gametophyte
(c) *Funaria*	(iii)	Dominant diploid sporophyte alternating with reduced gametophyte called prothallus
(d) *Cycas*	(iv)	Dominant haploid leafy gametophyte alternating with partially dependent multicellular sporophyte

Choose the **correct answer** from the options given below:
(1) (a)–(ii), (b)–(iii), (c)–(iv), (d)–(i)
(2) (a)–(iii), (b)–(iv), (c)–(i), (d)–(ii)
(3) (a)–(ii), (b)–(iv), (c)–(i), (d)–(iii)
(4) (a)–(iv), (b)–(i), (c)–(ii), (d)–(iii)

Re-NEET (UG) 2022

80. Match **List - I** with **List - II** :

List - I	List - II
(a) *Chlamydomonas*	(i) Moss
(b) *Cycas*	(ii) Pteridophyte
(c) *Selaginella*	(iii) Alga
(d) *Sphagnum*	(iv) Gymnosperm

Choose the **correct answer** from the options given below :
(1) (a)–(iii), (b)–(i), (c) - (ii), (d) - (iv)
(2) (a)–(iii), (b)–(iv), (c) - (ii), (d) - (i)
(3) (a)–(iii), (b)–(ii), (c) - (i), (d) - (iv)
(4) (a)–(ii), (b)–(iii), (c) - (i), (d) - (iv)

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81. Read the following statements and identify the characters related to the alga shown in the diagram:

(a) It is a member of Chlorophyceae
(b) Food is stored in the form of starch
(c) It is a monoecious plant showing oogonium and antheridium
(d) Food is stored in the form of laminarin or mannitol
(e) It shows dominance of pigments chlorophyll a, c and Fucoxanthin.

Choose the **correct answer** from the options given below :

(1) (a) and (b) only
(2) (a), (b) and (c) only
(3) (a), (c) and (d) only
(4) (c), (d) and (e) only

EXERCISE-II (Previous Year Questions) ANSWER KEY

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Answer	2	4	3	1	2	1	3	2	4	2	4	4	4	2	2
Question	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Answer	3	3	4	1	2	1	2	2	2	1	4	4	2	1	3
Question	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Answer	4	2	4	2	4	1	3	1	4	4	4	3	4	3	2
Question	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Answer	3	2	2	3	3	3	4	1	3	1	4	1	3	2	4
Question	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
Answer	1	1	4	4	3	3	1	1	1	2	3	4	4	2	1
Question	76	77	78	79	80	81									
Answer	3	2	1	1	2	2									

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Exercise - III Master Your Understanding

EXERCISE-III (A) NCERT BASED QUESTIONS

1. Algae reproduce by :-
(1) Asexual (2) Sexual
(3) Vegetative (4) All the above

2. Stored food in Phaeophyceae is :-
(1) Laminarin or manitol
(2) Starch
(3) Cellulose
(4) Algin

3. Asexual reproduction in maximum brown algae is by :-
(1) Biflagellated zoospore
(2) Single flagellated zoospore
(3) Aplanospore
(4) None of these

4. Pigments in Phaeophycae :-
(1) Chlorophyll a (2) Chlorophyll c
(3) Fucoxanthin (4) All the above

5. Generally red algae do not form :-
(1) Zoospore
(2) Non - motile spore
(3) Non- motile gamete
(4) None of these

6. The main plant body of bryophyte is :-
(1) Haploid (2) Diploid
(3) Haplo-diploid (4) Diplo-haploid

7. The plant body of liverworts is :-
(1) Sporophyte (2) Thalloid
(3) With roots (4) Xerophytic

8. Vegetative reproduction in mosses is by :-
(1) Fragementation
(2) Budding
(3) Both (1) & (2)
(4) By spore

9. *Marchantia* is an example of :-
(1) Mosses (2) Liver worts
(3) Sphenopsida (4) Lycopsida

10. In Mosses creeping, green, branched and frequently filamentous stage is called :-
(1) Protonema (2) Rhizome
(3) Rhizophore (4) All of these

11. The leaves of Pteridophyta are :-
(1) Microphylls
(2) Macrophylls
(3) Both (1) & (2)
(4) None of these

12. In majority of the Pteridophytes all the spores are of similar kind such plants are called :-
(1) Homosporous (2) Heterosporous
(3) Prothallus (4) Protanema

13. Which is the dominant phase of Pteridophytes ?
(1) Gametophyte (2) Sporophyte
(3) Spores (4) Gametes

14. In Pteridophytes, sporophylls may form distinct compact structure, called :-
(1) Strobili or cones (2) Microphyll
(3) Macrophyll (4) Tropophyll

15. Pteridophytes are classified in to :-
(1) Three classes (2) Two classes
(3) Four classes (4) Five classes

16. Gymnospermic plants are :-
(1) Homosporous
(2) Heterosporous
(3) Both
(4) Without spores

17. The nucellus is protected by envelopes and the composite structure is called :-
(1) Megaspore (2) Microspore
(3) Ovule (4) Cone

18. In *Cycas* specialised roots are associated with N_2 fixing cyanobacteria, called :-
(1) Tap root (2) Coralloid root
(3) Adventitious root (4) All the above

19. Gymnosperms include :-
(1) Medium sized trees
(2) Tall tree
(3) Shrubs
(4) All the above

20. In Gymnosperm which is not found :-
(1) Antheridia (2) Archegonia
(3) Both (4) None of these

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21. Which group does not produce embryo ?
(1) Algae (2) Moss
(3) Liverworts (4) Club moss

22. In which group the male and female sex organs are called antheridia and archegonia, respectively ?
(1) Blue green algae (2) Eubacteria
(3) Protista (4) Bryophyta

23. The group of plants, in which body is differentiated into root, stem and leaf :-
(1) Chlorophyceae
(2) Phaeophyceae
(3) Lycopsida
(4) Hepaticopsida

24. Which is not an example of moss plants ?
(1) *Funaria* (2) *Polytrichum*
(3) *Sphagnum* (4) *Colletotrichum*

25. Strobilli or cones are not formed in :-
(1) Lycopods (2) Sphenopsids
(3) Conifers (4) Ferns

26. In which group of plants both male and female gametophytes do not have an independent free living existence ?
(1) Bryophytes (2) Pteridophytes
(3) Gymnosperms (4) Both 1 and 2

27. The gametophyte of pteridophytes require to grow :-
(1) Warm, damp, and shady place
(2) Cool, damp, and shady place
(3) Warm, dry, and shady place
(4) Cool, dry, and place of well sunshine

28. Zygotic meiosis occurs in :-
(1) *Pinus* (2) *Funaria*
(3) *Pteridium* (4) *Chara*

29. The megaspore mother cell in gymnosperms is differentiated from :-
(1) Integument (2) Embryosac
(3) Nucellus (4) Endosperm

30. A group of algae, having following characters:-
(a) Chlorophyll a and b are present
(b) Chloroplast has one or many pyrenoids
(c) Cell wall made of cellulose and pectose
(d) Reserve food material is starch
Which one of the following is also a very important character including above characters to call it as a member of chlorophyceae ?
(1) Plant body colonial only
(2) Plant body is made of haploid cells called as gametophyte
(3) Its flagellar character may be 2–8 in number, equal and apical
(4) It may occur in fresh water, brackish water or salt water

31. Integumented megasporangia are formed in:-
(1) Phanerogames
(2) Cryptogames only
(3) Gymnosperms only
(4) Pteridophytes only

32. Needle like leaves to reduce the surface area, thick cuticle, and sunken stomata to reduce water loss etc. are the xerophytic characters present in :-
(1) Pteridophytes (2) Gymnosperms
(3) Angiosperms (4) Sphenopsida

33. Consider the following characters :-
(A) Formation of only one functional megaspore in a megasporangium
(B) Formation of hard covering around megasporangium
(C) Development of embryo from zygote within the female gametophyte
(D) Retention of megaspore inside the megasporangium
These were very essential events occurred during the course of evolution for the phenomenon of:-
(1) Heterospory
(2) Seed habit
(3) Fruit formation
(4) Covered seed formation

34. In gymnosperms, the megaspore forms :-
(1) Endosperm (2) Female gamete
(3) Male gamete (4) Male cone

35. Find the odd one with respect to ploidy?
(1) Spore (2) Sporophyte
(3) Archegonium (4) Antheridium

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36. Which of the following is odd one from the following about liverworts ?
(1) Foot, Seta, Capsule
(2) Spore, Archegonium, Antheridium
(3) Multicellular rhizoids, Protonema
(4) Rhizoids, Gemmae

37. Which is not true about fern plants ?
(1) They produce sori on sporophylls
(2) They produce male and female cone by spiral arrangement of sporophylls
(3) Some fern plants are heterosporous also
(4) Some ferns are aquatic also

38. Which group of plants is of less economic importance but have great ecological importance?
(1) Gymnosperms (2) Angiospems
(3) Bryophyta (4) Pteridophyta

39. Normally in gymnosperms how many archegonia are produced in an ovule ?
(1) One (2) Two
(3) Two or more (4) Always one

40. Fusion between a large, nonmotile (static) female gamete and a smaller, motile male gamete is termed as :-
(1) Isogamy (2) Oogamy
(3) Anisogamy (4) Autogamy

41. Vascular plants producing integumented megasporangia but not ovary are :-
(1) Pteridophytes (2) Gymnosperms
(3) Angiosperms (4) Bryophytes

EXERCISE-III(B) ANALYTICAL QUESTIONS

42. Water is essential in bryophyta :-
(1) For fertilization and homosporous nature
(2) Water should be filled in archegonium for fertilization
(3) Water is necessary for movement of sperm
(4) For dissemination spores

43. Which statement is wrong for *Cycas* ?
(1) Xylem have vessels
(2) Male cones are well developed
(3) It has coralloid roots
(4) Circinate ptyaxis/Circinate vernation

44. Walking fern name of *Adiantum* is due to :-
(1) Dispersal by animals
(2) Reproduction by spores
(3) Vegetative reproduction
(4) Power of locomotion

45. Which of the following statement is true for bryophyta ?
(1) Along with water absorption roots also provide anchorment to plants
(2) Sporophyte is dominant
(3) Gametophyte is dominant and sporophyte is mostly parasitic
(4) Gametophyte is parasitic

46. *Cycas* have two cotyledons but not included in angiosperms because of :-
(1) Naked ovules
(2) Seems like monocot
(3) Circinate ptyxis
(4) Compound leaves

47. What is true for cyanobacteria ?
(1) Oxygenic with nitrogenase
(2) Oxygenic without nitrogenase
(3) Non oxygenic with nitrogenase
(4) Non oxygenic without nitrogenase

48. Vessels are found in :–
(1) All angiosperms and some gymnosperm
(2) Most of the angiosperms and few gymnosperms
(3) All angiosperms, all gymnosperms and some pteridophyta
(4) All pteridophyta

49. Plants reproducing by spores such as mosses and ferns are grouped under the general term:-
(1) Cryptogams (2) Bryophytes
(3) Sporophytes (4) Thallophytes

50. Chlorenchyma is known to develop in the :-
(1) Cytoplasm of *Chlorella*
(2) Mycelium of a green mould such as *Aspergillus*
(3) Spore capsule of a moss
(4) Pollen tube of *Pinus*

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51. Angiosperms have dominated the land flora primarily because of their :-
(1) Domestication by man
(2) Power of adaptability in diverse habitat
(3) Property of producing large number of seeds
(4) Nature of self pollination

52. Top-shaped multiciliate male gemetes, and the mature seed which bears only one embryo with two cotyledons, are characteristic features of :
(1) Cycads
(2) Gamopetalous angiosperms
(3) Conifers
(4) Polypetalous angiosperms

53. Holdfast, stipe and frond constitutes the plant body in case of
(1) Rhodophyceae
(2) Chlorophyceae
(3) Phaeophyceae
(4) All of the above

54. A plant shows thallus level of organization. It shows rhizoids and is haploid. It needs water to complete its life cycle because the male gametes are motile. Identify the group to which it belongs to
(1) Pteridophytes (2) Gymnosperms
(3) Monocots (4) Bryophytes

55. A Prothallus is
(1) A structure in pteridophytes formed before the thallus develops
(2) A sporophytic free living structure formed in pteridophytes
(3) A gametophyte free living structure formed in pteridophytes
(4) A primitive structure formed after fertilization in pteridophytes

56. Plants of this group are diploid and well adapted to extreme conditions. They grow bearing sporophylls in compact structures called cones. The group in reference is
(1) Monocots (2) Dicots
(3) Pteridophytes (4) Gymnosperms

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57. Protonema is
(1) Haploid and is found in mosses
(2) Diploid and is found in liverworts
(3) Diploid and is found in pteridophytes
(4) Haploid and is found in pteridophytes

58. The giant Redwood tree (*Sequoia sempervirens*) is a/an
(1) Angiosperm (2) Free fern
(3) Pteridophyte (4) Gymnosperm

59. Zoospores(motile) are formed in :-
(1) Sexual reproduction
(2) Asexual reproduction
(3) Vegetative reproduction
(4) Sexual and asexual both

60. Binary fission is found in :-
(1) Multicellular algae
(2) Unicellular algae
(3) Multicellular algae and unicellular algae
(4) None of these

61. Hypnospores are formed in :-
(1) Favourable condition
(2) Unfavourable condition
(3) Favourable condition and Unfavourable condition
(4) None of these

62. At least how much amount of carbon dioxide is fixed by algae on earth?
(1) ¼ of total carbon dioxide
(2) ½ of total carbon dioxide
(3) ¾ of total carbon dioxide
(4) Small quantity of total carbon di oxide

63. Which of the following is not a hydrocolloid?
(1) Carrageen (2) Algin
(3) Agar-agar (4) Chlorella

64. Iodine and bromine are obtained from :-
(1) Laminaria (2) Chlorella
(3) Porphyra (4) Sargassum

65. Alginate is obtained from :-
(1) Fucus (2) Laminaria
(3) Macrocystis (4) All of these

66. Algae are of paramount importance :-
(1) As producers (2) As consumers
(3) Both of these (4) As microconsumers

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67. Protonema is a :-
(1) Stage of gametophytic generation.
(2) Green branched and develops directly from a spore.
(3) Produces lateral bud which forms leafy plant body.
(4) All of the above

68. Gymnosperm plants do not produce fruits because they do not have :-
(1) Ovary (2) Gametes
(3) Fertilization (4) None of these

69. The giant Redwood tree (Sequoia) is a/an :-
(1) Angiosperms (2) Free fern
(3) Pteridophytes (4) Gymnosperms

70. Select the correct statement :-
(1) Sequoia is one of the tallest trees
(2) The leaves of gymnosperms are not well adapted to extremes of climate
(3) Gymnosperms are both homosporous and heterosporous.
(4) Salvinia, Ginkgo and Pinus all are gymnosperms.

71. Which of the following is a fruit bearing group?
(1) Pteridophytes (2) Bryophytes
(3) Gymnosperms (4) Angiosperms

72. Essential parts of the flower are :-
(1) Androecium (2) Gynoecium
(3) Both (4) Calyx

73. In angiosperm the seed are enclosed in :-
(1) Thalamus (2) Petiole
(3) Stamen (4) Fruit

74. Which of the followings are monocotyledons:-
(1) Pulses
(2) Grasses
(3) Cereals
(4) Grasses and cereals

75. Which of the following are the characters present in dicot angiosperms?
(1) Tetramerous flower
(2) Two cotyledons in seeds
(3) Reticulated venation
(4) All of them

76. The grasses and cereals are respectively : -
(1) Monocotyledon, Dicotyledon
(2) Dicotyledon, Monocotyledon
(3) Dicotyledon, Dicotyledon
(4) Monocotyledon, Monocotyledon

77. Which character most differentiates angiosperms from gymnosperms?
(1) Triploid endosperm
(2) Vessels in xylem
(3) Seeds enclosed in fruits
(4) Attractive petals

78. Embryo sac is :-
(1) Haploid (2) Diploid
(3) Multinucleated (4) Triploid

79. In which of the following is incorrect regarding to Embryo sac :-
(1) One egg cell present
(2) One polar nuclei present
(3) Two synergid cell present
(4) Three antipodal cell presents

80. Identify the haploid structure of the plant :-
(1) Female gamete
(2) Zygote
(3) Embryo
(4) Secondary nucleus

81. In which of the following is haploid :-
(1) Zygote (2) Polar
(3) Endosperm (4) Secondary nucleus

82. In haploid life cycle the domint phase is :-
(1) Diploid sporophyte
(2) Diploid sporophyte
(3) Diploid gametophyte
(4) Haploid gametophyte

83. Choose the correct statement :-
(1) Haploid life cycle is present in Spirogyra
(2) Diplontic life cycle is present in focus
(3) Haplontic- diplontic life cycle is present in pteridophyte
(4) Haploid life cycle is present in gymnosperm

84. Which one of the following has haplontic life cycle :-
(1) Wheat (2) Funaria
(3) Polytrichum (4) Ustilago

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85. Life cycle patterns of all seed-bearing plants and maximum algae respectively are :-
(1) Haplontic, Diplontic
(2) Haplontic, Haplontic
(3) Diplontic, Diplontic
(4) Diplontic, Haplontic

86. In haplontic life cycle the haploid spore divides by A division and forms the B, identify the A and B :-
(1) A-Meiotic, B- Sporophyte
(2) A-Mitotic, B- Sporophyte
(3) A-Meiotic, B- Gametophyte
(4) A-Mitotic, B- Gametophyte

87. Life cycle of *Polysiphonia* and Fucus is :-
(1) Diplontic, haplodiplontic
(2) Haplodiplontic, diplontic
(3) Haplodiplontic, haplontic
(4) Haplontic, diplontic

88. Choose the incorrect statement :-
(1) Haplontic life cycle is present in Spirogyra
(2) Diplontic life cycle is present in fucus
(3) Haplo-diplontic life cycle is present in pteridophytes.
(4) Haplontic life cycle is present in gymnosperm

89. most algal genera are -----A----- some of them such as Ectocarpus, Polysiphonia, kelps are---B----Identify the A and B :-
(1) Diplontic and Diplontic
(2) Haplontic and haplontic
(3) Haplontic and diplontic
(4) Haplontic and haplo-diplontic

90. Sporophyte $\rightarrow$ Spore $\rightarrow$ "A"
Identify the A :-
(1) Zygote
(2) Syngamy
(3) Gametophyte
(4) Gametogenesis

91. Sporophyte is developed from :-
(1) Spore
(2) Gametophyt
(3) Zygote
(4) Meiosis

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92. Given below are two statements:
Statement-I : Natural classification systems also based on evolutionary relationships between the various organisms.
Statement-II : In numerical taxonomy each character is given equal importance and at the same time hundreds of characters can be considered.
In the light of the above statements, choose the most appropriate answer from the options given below:
(1) Both Statement-I and Statement-II are correct.
(2) Both Statement-I and statement-II are incorrect.
(3) Statement-I is correct but Statement-II is incorrect.
(4) Statement-I is incorrect but Statement-II is correct.

93. Given below are two statements:
Statement-I : The form and size of algae is highly variable, ranging from colonial forms like Ulothrix and Spirogyra and to the filamentous forms like Volvox.
Statement-II : Aniosogamous type of reproduction is found in Eudorina.
In the light of the above statements, choose the most appropriate answer from the options given below:
(1) Both Statement-I and Statement-II are correct.
(2) Both Statement-I and statement-II are incorrect.
(3) Statement-I is correct but Statement-II is incorrect.
(4) Statement-I is incorrect but Statement-II is correct.

94. Given below are two statements:
Statement-I : Agar is one of the commercial products obtained from members of phaeophyceae.
Statement-II : Major pigments chlorophyll a, d and phycoerythrin is found in the members of phaeopyceae.

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In the light of the above statements, choose the most appropriate answer from the options given below:
(1) Both Statement-I and Statement-II are correct.
(2) Both Statement-I and statement-II are incorrect.
(3) Statement-I is correct but Statement-II is incorrect.
(4) Statement-I is incorrect but Statement-II is correct.

95. Given below are two statements:
Statement-I : Most of the members of chlorophyceae have one or more storage bodies called pyrenoids located in the chloroplasts.
Statement-II : Cell wall of members of rhodophyceae is made up of cellulose, pectin and polysulphate esters.
In the light of the above statements, choose the most appropriate answer from the options given below:
(1) Both Statement-I and Statement-II are correct.
(2) Both Statement-I and statement-II are incorrect.
(3) Statement-I is correct but Statement-II is incorrect.
(4) Statement-I is incorrect but Statement-II is correct.

96. Given below are two statements:
Statement-I : Algae are non embryophytes, atracheophytes, spermatophytes and homosporous.
Statement-II : Sex organs of algae are multicellular and jacketed.
In the light of the above statements, choose the most appropriate answer from the options given below:
(1) Both Statement-I and Statement-II are correct.
(2) Both Statement-I and statement-II are incorrect.
(3) Statement-I is correct but Statement-II is incorrect.
(4) Statement-I is incorrect but Statement-II is correct.

97. Given below are two statements:
Statement-I : Selaginella and Salvinia are homosporous pteridophytes.
Statement-II : Gymnosperms are tracheophytes, embryophytes, heterosporous, spermatophytes phanerogams.
In the light of the above statements, choose the most appropriate answer from the options given below:
(1) Both Statement-I and Statement-II are correct.
(2) Both Statement-I and statement-II are incorrect.
(3) Statement-I is correct but Statement-II is incorrect.
(4) Statement-I is incorrect but Statement-II is correct.

98. Given below are two statements: one is labelled as Assertion (A) and the other is labelled as Reason (R).
Assertion (A) : Artificial system of classification separated closely related species.
Reason (R) : Artificial system of classification was based on a few characterstics.
In the light of the above statements, choose the most appropriate answer from the options given below :
(1) Both (A) & (R) are correct but (R) is not the correct explanation of (A).
(2) (A) is correct but (R) is not correct.
(3) (A) is not correct but (R) is correct.
(4) Both (A) & (R) are correct and (R) is the correct explanation of (A).

99. Given below are two statements: one is labelled as Assertion (A) and the other is labelled as Reason (R).
Assertion (A) : Most algal genera are haplontic.
Reason (R) : In algae, mitosis in zygote results in the formation of diploid spores, the diploid spores divide meiotically to form gametophyte.

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In the light of the above statements, choose the most appropriate answer from the options given below :

(1) Both (A) & (R) are correct but (R) is not the correct explanation of (A).

(2) (A) is correct but (R) is not correct.

(3) (A) is not correct but (R) is correct.

(4) Both (A) & (R) are correct and (R) is the correct explanation of (A).

100. Given below are two statements: one is labelled as Assertion (A) and the other is labelled as Reason (R).

Assertion (A) : Mosses are of great ecological importance.

Reason (R) : Mosses along with lichens are the first organisms to colonise rocks. They decompose rocks making the substrate suitable for the growth of higher plants.

In the light of the above statements, choose the most appropriate answer from the options given below :

(1) Both (A) & (R) are correct but (R) is not the correct explanation of (A).

(2) (A) is correct but (R) is not correct.

(3) (A) is not correct but (R) is correct.

(4) Both (A) & (R) are correct and (R) is the correct explanation of (A).

101. Given below are two statements: one is labelled as Assertion (A) and the other is labelled as Reason (R).

Assertion (A) : Majority of pteriodophytes are heterosporous.

Reason (R) : Genera like selaginella and salvinia produce two kinds of spores, macro (large) and micro (small).

In the light of the above statements, choose the most appropriate answer from the options given below :

(1) Both (A) & (R) are correct but (R) is not the correct explanation of (A).

(2) (A) is correct but (R) is not correct.

(3) (A) is not correct but (R) is correct.

(4) Both (A) & (R) are correct and (R) is the correct explanation of (A).

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102. Given below are two statements: one is labelled as Assertion (A) and the other is labelled as Reason (R).

Assertion (A) : In heterosporous pteridophytes, gametophyte is dioecious.

Reason (R) : The female gametophytes in heterosporous pteridophytes, are retained on parent sporophyte for variable periods.

In the light of the above statements, choose the most appropriate answer from the options given below :

(1) Both (A) & (R) are correct but (R) is not the correct explanation of (A).

(2) (A) is correct but (R) is not correct.

(3) (A) is not correct but (R) is correct.

(4) Both (A) & (R) are correct and (R) is the correct explanation of (A).

103. Identify the correct set of statements :

(a) Natural classification systems were not based on natural affinities among the organisms and evolutionary relationship between various organisms.

(b) In Volvox, Fucus sexual reproduction is oogamous.

(c) In numerical taxonomy, each character is given equal importance and at the same time hundreds of characters can be considered.

(d) In algae, asexual reproduction is by production of different types of spores, the most common being the conidia.

(e) Atleast half of the total carbon di-oxide fixation on earth is carried out by algae through photosynthesis.

Choose the correct answer from the options given below :

(1) (a) and (b) only

(2) (b), (c), (d) and (e) only

(3) (a), (b), (d) and (e) only

(4) (b), (c) and (e) only

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104. Identify the correct set of statements :

(a) Red colour of red algae is due to predominance of the red pigment fucoxanthin.

(b) Chlorella is a multicellular alga rich in proteins is used as food supplement even by space travallers.

(c) Green algae usually have a rigid cell wall made of an outer layer of cellulose and an inner layer of pectose.

(d) In red algae food is stored as floridean starch which is very similar to amylopectin and glycogen in structure.

(e) Fucus is a brown alga shows haplo-diplontic life cycle.

Choose the correct answer from options given below :

(1) (a), (b) and (c)

(2) (a), (b), (c) and (e)

(3) only (d)

(4) (c) and (d) only

105. Identify the correct set of statements :

(a) Polysiphonia, Porphyra are red algae, and Laminaria, Sargassum are brown algae.

(b) Asexual reproduction in most brown algae is by biflagellated zoospores that are pear shaped and have two equal laterally attached flagella.

(c) The plant body of bryophytes is less differentiated than pteriodophytes.

(d) Species of Gelidium, a moss provide peat that have long been used as fuel.

(e) Marchantia, is the leafy member of liverworts has tiny leaf like appendages in two rows on stem like structure.

Choose the correct answer from options given below :

(1) (a) and (c) only

(2) (b), (d) and (e) only

(3) (a), (b) and (c) only

(4) (c) only

106. Identify the correct set of statements :

(a) The main plant body of the bryophytes is haploid.

(b) In bryophytes, zygotes do not undergo reduction division immediately and they produce a multicellular body called sporophyte.

(c) In Selaginella, Equisetum sporophylls may form distinct compact structures called strobili or cones.

(d) Funaria, Polytrichum and Sphagnum are liverworts.

(e) In mosses rhizoids are unbranched and unicellular.

Choose the correct answer from options given below :

(1) (a), (b) and (c) only

(2) (a), (b), (c) and (d) only

(3) (d) and (e) only

(4) (a), (b) and (d) only

107. Identify the correct set of statements :

(a) Pteridophytes are first spermatophytes evolutionarily.

(b) In homosporous pteridophytes, spores germinate to give rise to inconspicuous, small but multicellular, free living mostly photosynthetic thalloid gameteophytes called prothallus.

(c) Majority of pteriodophytes are homosporous.

(d) Homosporous pteridophyes show event precursor to the seed habit.

(e) Equisetum belongs to class lycopsida.

Choose the correct answer from options given below :

(1) (a), (d) and (e) only

(2) (b) and (c) only

(3) (a), (b), (c) and (d) only

(4) (b), (c) and (d) only

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108. Identify the correct set of statements :

(a) One of the gymnosperms, the gaint red wood tree sequoia is one of the tallest tree species.

(b) Gymnosperms are heterosporous cryptogams.

(c) Gymnosperms are evolutionarily last archegoniate plant group.

(d) Pteridophytes are evolutionarily last antheridial plant group.

(e) The stems are unbranched in Cycas and branched in Pinus and Cedrus.

Choose the correct answer from options given below :

(1) (a), (b) and (d) only

(2) (c), (d) and (e) only

(3) (a), (b), (c) and (d) only

(4) (a), (c), (d) and (e) only

109. Identify the correct set of statements :

(a) Roots in some genera have fungal association in the form of mycorrhiza (like Cycas), while in some others (like Pinus) small specialised roots called coralloid roots are associated with N2–fixing cyanobacteria.

(b) In gymnosperms the multicellular female gametophytes is also retained within megasporangium.

(c) In gymniosperms endoseprms represents female gametophyte.

(d) Gymnosperms show anemophilous pollination.

(e) In Cycas the pinnate leaves persist for few year.

Choose the correct answer from options given below :

(1) (a), (b), (c) and (e) only

(2) (a), (c), (d) and (e) only

(3) (b), (c), (d) and (e) only

(4) (a), (b), (c), (d) and (e)

110. Identify the correct set of statements :

(a) Angiosperms range in size form the smallest Wolfia to tall tree like Eucalyptus. (Over 100 meter)

(b) In angiosperms embryo sac has three celled egg apparatus which includes one egg cell and two synergids.

(c) In angiosperms endosperm is haploid and it represents the female gametophyte.

(d) Double fertilization event is unique to gymnosperms.

(e) In angiosperms zygote develops into embryo and PEN develops into endosperm which provides nourishment to developing embryo.

Choose the correct answer from options given below :

(1) (a), (b), (c) and (e) only

(2) (a), (b) and (e) only

(3) (b) and (e) only

(4) (a), (c) and (e) only

111. Identify the correct set of statements :

(a) In spirogyra sporophytic generation is represented only by one called zygote.

(b) Fucus is a brown alga shows diplontic life cycle.

(c) Bryophytes and pteridophytes show diplontic life cycle.

(d) Ectocarpus, polysiphonia, kelps are haplodiplontic.

(e) Gymnosperms and angiosperms show haplontic life cycle.

Choose the correct answer from options given below :

(1) (a), (b) and (e) only

(2) (a), (b), (d) and (e) only

(3) (a), (b) and (d) only

(4) (b) and (d) only

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EXERCISE-III ANSWER KEY

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Answer	4	1	1	4	1	1	2	3	2	1	3	1	2	1	3
Question	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Answer	2	3	2	4	1	1	4	3	4	4	3	2	4	3	3
Question	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Answer	1	2	2	1	2	3	2	3	3	2	2	3	1	3	3
Question	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Answer	1	1	2	1	3	2	1	3	4	3	4	1	4	2	2
Question	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
Answer	2	2	4	1	4	1	4	1	4	1	4	3	4	4	4
Question	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Answer	4	3	1	2	1	3	4	4	4	4	4	2	4	4	3
Question	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105
Answer	3	1	4	2	1	2	4	4	2	4	3	1	4	3	1
Question	106	107	108	109	110	111									
Answer	1	2	4	3	2	3									

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Important Notes